

We claim:

1. A method of transmitting an identifying signal in an orthogonal frequency division multiplexing system, comprising the steps of:

5 modulating said signal;

transforming said modulated signal to create an OFDM signal having a plurality of sub-carriers; and

transmitting an identifying signal on inactive sub-carriers, wherein said identifying signal identifies a transmitter.

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2. The method of claim 1, wherein said modulation step further comprises the step of differentially modulating said signal in the frequency domain.

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3. The method of claim 1, wherein said inactive sub-carriers will be modulated in accordance with a predefined transmitter identifier information value.

4. The method of claim 1, wherein said inactive sub-carriers carrying said identifying signal are transmitted at a reduced power.

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5. The method of claim 1, further comprising the step of mapping said identifying value onto a set of complex symbols.

6. The method of claim 1, wherein said inactive sub-carriers carrying said identifying signal are transmitted with each OFDM symbol.

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7. The method of claim 1, wherein said transforming step implements a Fast Fourier Transform.

8. The method of claim 1, wherein said transforming step implements an orthogonal transform.
9. An orthogonal frequency division multiplexing transmitter for transmitting an OFDM signal, comprising:
  - an encoder for modulating said OFDM signal;
  - a transformer for creating said OFDM signal having a plurality of sub-carriers; and
  - means for inserting an identifying signal on inactive sub-carriers, wherein said identifying signal identifies a transmitter.
10. The transmitter of claim 9, wherein said encoder differentially modulates said signal in the frequency domain.
11. The transmitter of claim 9, wherein said inactive sub-carriers will be modulated in accordance with a predefined transmitter identifier information value.
12. The transmitter of claim 9, wherein said inactive sub-carriers carrying said identifying signal are transmitted at a reduced power.
13. The transmitter of claim 9, wherein said identifying value is mapped onto a set of complex symbols.
14. The transmitter of claim 9, wherein said inactive sub-carriers carrying said identifying signal are transmitted with each OFDM symbol.
15. The transmitter of claim 9, wherein said transformer a Fast Fourier Transform.

16. The transmitter of claim 9, wherein said transformer implements an orthogonal transform.
17. A method of receiving an identifying signal in an orthogonal frequency division multiplexing system, comprising the steps of:  
5 transforming said received signal to recover an OFDM signal in the frequency domain having a plurality of sub-carriers;  
decoding said OFDM signal; and  
processing an identifying signal received on inactive sub-carriers, wherein said 10 identifying signal identifies a transmitter.
18. The method of claim 17, wherein said decoding step further comprises the step of differentially demodulating said signal in the frequency domain.
- 15 19. The method of claim 17, wherein said inactive sub-carriers will be demodulated in accordance with a predefined transmitter identifier information value.
20. The method of claim 17, wherein said inactive sub-carriers carrying said identifying signal are received at a reduced power.
21. The method of claim 17, wherein said inactive sub-carriers carrying said identifying signal are received with each OFDM symbol.
22. The method of claim 17, wherein said transforming step implements a Fast 25 Fourier Transform.
23. The method of claim 17, wherein said transforming step implements an orthogonal transform.

24. An orthogonal frequency division multiplexing receiver for receiving an OFDM signal, comprising:

a transformer for transforming said received signal to recover an OFDM signal in the frequency domain having a plurality of sub-carriers;

5 a decoder for demodulating said OFDM signal; and

means for processing an identifying signal received on inactive sub-carriers, wherein said identifying signal identifies a transmitter.

25. The receiver of claim 24, wherein said decoder differentially demodulates said

10 signal in the frequency domain.

26. The receiver of claim 24, wherein said inactive sub-carriers will be demodulated in accordance with a predefined transmitter identifier information value.

15 27. The receiver of claim 24, wherein said inactive sub-carriers carrying said identifying signal are received at a reduced power.

28. The receiver of claim 24, wherein said inactive sub-carriers carrying said identifying signal are received with each OFDM symbol.

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29. The receiver of claim 24, wherein said transformer implements a Fast Fourier Transform.

30. The receiver of claim 24, wherein said transformer implements an orthogonal  
25 transform.